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EXAMINER

LUGO, DAVID B

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 07/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/550,757

Applicant(s)

JAFJE ET AL.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 30-97 is/are pending in the application.
- 4a) Of the above claim(s) 96 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-95 and 97 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 30-95 and 97, drawn to a ramping circuit for a precoder, classified in class 375, subclass 285.
  - II. Claim 96, drawn to a feedforward filter wherein the reference tap is located at a center location, classified in class 375, subclass 234.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as being used in a system where the reference tap of the feedforward filter in a decision feedback equalizer is located at the beginning of the filter, and not at the center. See MPEP § 806.05(d).
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Raymond Tabandeh on 6/26/03, a provisional election was made without traverse to prosecute the invention of Group I, claims 30-95 and 97. Affirmation of this election must be made by applicant in replying to this Office action. Claim 96 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Drawings***

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 30 (Fig. 3), 50 (Fig. 5), 60 (Fig. 6), 79a-79d (Fig. 7), 80 and 81 (Fig. 8), 904 and 905 (Fig. 9). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

7. The disclosure is objected to because of the following informalities:

Page 36, line 18, "converter 91" should be --converter 901--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claims 30-32, 36, 37, 40-42, 46, 47, 50-52, 56, 57, 68-70, 74, 75, 86-88, 92, 93 and 97 are rejected under 35 U.S.C. 102(e) as being anticipated by Langberg et al. U.S. Patent 6,243,425.

10. Regarding claim 30, Langberg et al. disclose a ramping circuit (converter 130) configured to receive equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder (see Fig. 6, col. 4, line 63 to col. 5, line 17).

11. Regarding claim 31, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

12. Regarding claim 32, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

13. Regarding claim 36, the ramping circuit 130 receives the coefficients over channel 119.

14. Regarding claim 37, the ramping circuit 130 is considered to define part of the transmitter unit associated with the precoder filter.

15. Regarding claim 40, Langberg et al. disclose a receiver, considered to comprise a decision feedback filter (ISI filter 64) and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from the decision feedback filter and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder (see Fig. 6, col. 4, line 63 to col. 5, line 17).

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16. Regarding claim 41, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

17. Regarding claim 42, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

18. Regarding claim 46, the ramping circuit 130 receives the coefficients over channel 119.

19. Regarding claim 47, the ramping circuit 130 transmits coefficient update information to the precoder filter via line 132.

20. Regarding claim 50, Langberg et al. disclose a transmitter, considered to comprise a precoder 94 and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder (see Fig. 6, col. 4, line 63 to col. 5, line 17).

21. Regarding claim 51, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

22. Regarding claim 52, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

23. Regarding claim 56, the ramping circuit 130 receives the coefficients over channel 119.

24. Regarding claim 57, the ramping circuit 130 is considered to define part of the transmitter unit associated with the precoder filter.

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25. Regarding claims 68 and 86, Langberg et al. disclose a communication system 115 in Fig. 5 comprising a plurality of DCEs (11, 14) each DCE inherently comprising a transmitter and a receiver which collectively include a decision feedback filter (ISI filter 64), a precoder 94, and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from a decision feedback filter of a complimentary transceiver and determine a new set of precoder values by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder (see Fig. 6, col. 4, line 63 to col. 5, line 17).

26. Regarding claims 69 and 87, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

27. Regarding claims 70 and 88, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

28. Regarding claims 74 and 92, the ramping circuit 130 receives the coefficients over channel 119.

29. Regarding claims 75 and 93, the ramping circuit 130 is considered to define part of the transmitter unit associated with the precoder filter.

30. Regarding claim 97, Langberg et al. a communications system where a message is received and is considered to be stored on a machine-readable media, wherein the message contains information processed according to a method where a precoder 94 precodes a signal and has coefficients that are calculated by a ramping circuit (converter 130) configured to receive

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equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount (see Fig. 6, col. 4, line 63 to col. 5, line 17).

***Claim Rejections - 35 USC § 103***

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. Claims 33-35, 38, 39, 43-45, 48, 49, 53-55, 58-67, 71-73, 76-85, 89-91, 94 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langberg et al.

33. Regarding claims 38, 48, 58, 76 and 94, Langberg et al. disclose a ramping circuit as described above, and further teach that the ramping circuit 130 receives the coefficients over channel 119 and is used in a modem in a communications transceiver. Langberg et al. does not expressly state that the transceiver is a DSL transceiver. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

34. Regarding claim 39, 49, 59, 77 and 95, Langberg et al. disclose a ramping circuit as described above, and further teach that the ramping circuit 130 receives the coefficients over channel 119 and is used in a modem in a communications transceiver. Langberg et al. does not expressly state that the transceiver is a DSL transceiver. However, DSL transceivers are well



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known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

35. Regarding claims 60 and 78, Langberg et al. disclose a communication system 115 in Fig. 5 comprising a plurality of DCEs (11, 14) each DCE inherently comprising a transmitter and a receiver which collectively include a decision feedback filter (ISI filter 64), a precoder 94, and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from a decision feedback filter and determine a new set of precoder values by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to a precoder (see Fig. 6, col. 4, line 63 to col. 5, line 17).

36. Langberg et al. does not disclose that the ramping circuit of is placed in the receiver portion of the transceiver, and it receives filter tap coefficients from the transceiver's decision feedback filter and communicates the ramped output to a precoder of a complimentary transceiver.

37. However, placement of the ramping circuit in the receiver portion of the transceiver at the same remote location as the decision feedback filter, as opposed to placing the ramping circuit in the transmitter portion of the transceiver at the same remote location as the precoder is deemed a design consideration, as both configurations will produce the same ramping effect in the precoder coefficients.

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38. Regarding claims 61 and 79, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

39. Regarding claims 62 and 80, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

40. Further regarding claims 66 and 84, Langberg et al. do not state that the receiver portion is part of a DSL receiver. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

41. Further regarding claims 67 and 85, Langberg et al. do not state that the ramping circuit is part of a DSL transmitter. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

42. Regarding claims 33-35, 43-45, 53-55, 63-65, 71-73, 81-83 and 89-91, Langberg et al. disclose a ramping circuit that provides a ramped output varied over time from a first value to a second value, as described above, but do not expressly state whether the output is ramped linearly or non-linearly. However, one of ordinary skill in the art would recognize that the output in the ramping circuit of Langberg et al. must be ramped either linearly or non-linearly (i.e. exponentially). Selection of the ramping to be either linear or to exponential is deemed a design consideration that fails to patentably distinguish over the prior art of Langberg et al.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dbl

7/15/03